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UNITED STATES DEPARTMENT OF AGRICULTURE

U.S. FOREIGN AGRICULTURAL SERVICE

Grain and Feed Division

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3 COMMERCIAL DESIGNATIONS OF QUALITY AND VARIETY
DESCRIPTIONS FOR ALFALFA (LUCERNE) SEED*

With the increased marketing abroad of U.S. seed there has been a marked need for brief descriptions of both the qualities of seed and of the varieties in commerce. Common, verified origin, and certified qualities of alfalfa seed as offered by the American seed trade, as well as the major values of each variety, particularly as to relative winter hardiness, resistance to disease and to insect pests are not well known to the seed merchants of other countries. No attempt has been made to describe the areas of use for each variety since many countries, through their extensive varietal testing programs, have already established such facts.

With a cross-pollinated forage crop such as alfalfa, which is grown over so wide an area under the influences of such varying climatic conditions and lengths of growing seasons, it is not surprising that there are many types and varieties of this crop, each with relatively specific areas of adaptation.

The breeding of varieties adapted to the various parts of the country has made it possible to grow alfalfa profitably for pasture, hay, and silage in every one of the 48 states of the United States and in all of the provinces of Canada bordering on the United States, an area extending over 1,800 miles from north to south, and over 3,000 miles from east to west. This development of agricultural production of alfalfa, together with the Foundation Seed Programs, has been of as much or greater significance to the agriculture of the United States as hybrid corn.

Common and Uncertified Alfalfa Seed. The term "common" alfalfa is usually a type designation for alfalfa that is unidentifiable as to variety but which, through intercrossing and natural selection, has become acclimatized to conditions that prevail in a given area. Inability to establish true varietal identity of such alfalfa may result from inadequate varietal history, blending or mechanical mixing of seed of different varieties or lots, or excessive cross-pollination between varieties. While the common alfalfas generally are purple-flowered, some of the present-day northern commons may exhibit an array of flower colors because of inter-pollination with variegated varieties.

In a botanical sense the term "common alfalfa" is also applied to the original purple-flowered alfalfa (Medicago sativa) and as a group designation to include the improved varieties of this species, to differentiate them from the yellow-flowered alfalfa (M. falcata) and natural or artificial crosses of these two species, which are known as "variegated alfalfas" because of their exhibiting the two colors in various combinations.

Most of the commercial common alfalfa seed sold by leading field seed dealers today is sold under the designation of the state in which it was produced and is verified as to state or locality of origin by the U.S. Seed Verification Service.

* This brochure has been prepared by the Grain and Feed Division, FAS, to meet the need, which has arisen in foreign seed markets, for an explanation of terms used in describing American seeds. A considerable portion of this material has been adapted from a Chapter on "Alfalfa Seed" from the advance manuscript of a volume on "Grassland Seeds" by W. A. Wheeler and D. D. Hill, one of the "Grassland Farm Series", published by D. Van Nostrand Co., 250 Fourth Avenue, New York, N.Y. These authors have granted permission for use of this material and have made further contributions to the text of this brochure.

Such names as Kansas Common, Utah Common, Idaho Common, California Common, and others are common names given to the general run of alfalfa seed from those states by commercial field seed dealers. Sometimes there are other variations of these terms used in certain states. For example, Oklahoma has a system for designating true Oklahoma grown common alfalfa as "Oklahoma Approved Origin." In a few states, certain old, state-adapted strains of common alfalfas are certified. The significance of such certification probably varies in the few states where common alfalfa is certified.

The verification of origin of uncertified domestic alfalfa seed under the Seed Verification Service has been in operation as a cooperative service between the U.S. Department of Agriculture and the more prominent field seed dealers in the important alfalfa seed-producing and seed-distributing areas since 1927. Dealers enrolled in this service are required to verify the origin of all domestic alfalfa seed handled by them except state certified. Also, the Federal Seed Act passed in 1939 requires a statement of "State of Origin" on all alfalfa seed in commerce.

This has had the effect of establishing a much greater significance to the state-of-origin statement on the label, particularly as applied to lots of non-certified seed offered for sale by seed dealers in which most lots offered are blends of several, to many growers' lots all produced in a single state or in several states, located in the same zone of adaptation. If all lots going into such a blend are the result of several generations of natural selection within the area, the mixture may well represent a source of seed which has reasonably good adaptation to that particular region. Though this practice does not guarantee complete elimination of non-adapted seed harvested in such an area from fields tracing directly to non-suitable origins, it has had the effect of lessening the probability of any substantial proportion of such multi-blends having been grown from unadapted seed.

Blended Alfalfa Seed. Since many fields of alfalfa from which seed is produced are established from seed of one of the named varieties, the records for which have not been maintained in a way that the seed can be certified, the seed from such fields becomes mixed or blended with seed from ordinary alfalfa of no described variety. This is particularly true in the Northern states where Grimm, and, to a lesser extent, certain other variegated alfalfas have been grown, the identity of which has not been fully preserved.

Unless satisfactory assurance can be obtained from the growers' "spot" records, these lots of seed are not likely to be sold under the variety name because of the liability of dealer and grower under the Federal Seed Act or state seed law as to trueness of variety. Progressive seed dealers and processors may blend such seed into large lots for merchandising purposes and offer them under some suitable designation such as "Northern Variegated" alfalfa seed, or perhaps blend them with seed from old fields and call such blended lots "Northern Blend" or any other similar designation which does not misrepresent the real character or adaptation of the blended lots.

The dealer offering such lots should always give a factual statement of their general composition and, of course, have them verified as to origin. Such seed is likely to be superior to the nondescript seed from such states, the degree of superiority depending upon composition of the blends and the care of the dealer or processor making the blends.

Breeding of Improved Varieties of Alfalfa. Prior to 1900 the growing of alfalfa in the United States for both forage and seed was confined to the western half of the country. Since then the breeding and development of varieties of alfalfa that would survive the winters of the Northern States and produce good crops of forage under the

humid conditions of the eastern half of the country have revolutionized alfalfa production. Today there is more alfalfa grown for forage in the eastern half of the United States than in the western half and most of it is in the Corn Belt and in the North Central States. Alfalfa seed production, however, is confined almost entirely to the subhumid and semi-arid West and this production is mostly under irrigation. Yields of 1,200 to 1,800 pounds of certified seed per acre are obtained in California where the total annual alfalfa seed production has expanded from an average of 13.5 million pounds for 1943-52 to 59 million pounds in 1954, and a certified alfalfa seed production of one million pounds in 1949 to 40 million pounds in 1954.

The increase in California production of certified seed of varieties, many of which were developed for other areas, has been brought about because of the recognition that the area of production of certified seed under certified restrictions does not change the genetic character of such seed.

Certified Seed and Foundation Seed Programs. Since alfalfa seed is indistinguishable as to variety by examination of the seed itself, and most of the commercial alfalfa seed produced must travel long distances from one part of the country to another, and must go through many hands before reaching its ultimate destination for use, it is not feasible ordinarily for any single seed dealer, through his own operations, to give his customers adequate assurance of the varietal or genetic purity, pedigree, or maintenance of identity of the seed handled and sold by him. For these reasons, the Crop Improvement Association of the United States and Canada has set up standards for the certification of improved varieties of alfalfa seed and the seed of certain other kinds of field crops. These serve as minimum standards of production for foundation, registered, and certified seed and are put into effect through the State Crop Improvement Associations which are members of this joint association. Some state associations in their respective states have adopted minimum standards that are higher than those set by the parent body.

In addition to certification for variety which involves specifications for field seed production, field inspection, minimum isolation distances from other varieties and from commercial alfalfa fields which might cause cross-pollination, the Crop Improvement Association of the United States and Canada has established minimum standards of seed quality below which certified blue-tag seed is not permitted to go. Since these are only minimum standards, the customer must depend upon the analysis data shown on the analysis tag which is given by the dealer in compliance with the Federal Seed Act and the seed law of the state in which the seed is certified, for more specific information pertaining to a specific lot of certified seed. This blue tag gives the customer assurance that the seed in the bag to which the tag is sealed meets the minimum blue-tag requirements as to varietal and mechanical purity, germination, and weed-seed content of the state association certifying the seed.

Red tags are used by some states for certified seed of slightly lower specifications than the minimum standards for blue-tag seed.

The Foundation Seed Program was developed by the United States Department of Agriculture in cooperation with the state crop improvement associations and commercial seedsmen to assure ample supplies of certified seed for planting in the United States and some for export. Initiated in 1949, it has during the few years of operation, developed adequate or nearly adequate supplies of certified seed of a number of improved varieties of alfalfa, such as Ranger, Buffalo, Atlantic, and Narragansett. More limited certified seed stocks, both within and without the Foundation Seed Program of Vernal, Williamsburg, Talent, Nomad, and some others are now available, but even these may meet the over-all requirements in a year or two. Other varieties are rapidly coming into the picture to extend the range of adaptation, improve disease resistance and increase forage yields.

The development of modern methods, mechanization of production and large scale operations in the production of certified seed in areas of high-acre-yields have made possible the great expansion of certified alfalfa seed production in the past few years. Most of the certified seed is handled through the regular seed dealers who maintain stocks of seed put up in convenient sized, sealed bags to suit almost any farmer's requirements. Always look for the certified blue tag sealed to the bag of certified seed. Without that tag sealed to the seed bag it is not "certified seed."

RECOGNIZED VARIETIES OF ALFALFA GROWN IN THE UNITED STATES*

AFRICAN

African alfalfa is an introduction from Hegaza, Egypt. The seed was sent by H.L. Westover to F.G. Noble of the USDA Experiment Station at Bard, California. Noble observed that this variety did very well in his tests. It is well adapted to the deep Southwest, being rapid growing with a quick recovery after cutting. It is not cold resistant. African is a good fall, winter and spring growing type in areas free of bacterial-wilt.

ARGENTINE

Argentine alfalfa traces directly to the country of Argentina and when grown in the United States gives variable and for the most part undependable performance. In growth habit and response it resembles closely the non-hardy and moderately hardy common alfalfas. Yields are usually from 5 - 20% lower than those of adapted domestic strains. It is susceptible to wilt and the leaf diseases.

ATLANTIC

Atlantic alfalfa is a high-yielding, fast-recovering variety selected by H.B. Sprague and co-workers at the New Jersey Agricultural Experiment Station. In many characteristics, Atlantic is similar to Hardigan or Baltic, and is classified as a variegated alfalfa. It is not resistant to the bacterial wilt disease, but in areas where bacterial wilt is not a factor it is one of the best yielding varieties. It is better adapted to the eastern United States than most of the standard varieties.

BUFFALO

This is a highly wilt-resistant selection from Kansas Common alfalfa with similar growth habit and adaptation. The one outstanding characteristic in which it differs from Kansas Common is its wilt-resistance. Though not as widely known or grown as Ranger, it is widely adapted through the Central States extending north to New Jersey, Wisconsin and Washington.

CALIVERDE

This alfalfa is similar to California Common in adaptation and growth habit and has in addition resistance to three diseases which cause California growers heavy losses; namely, bacterial wilt, common leafspot and downy mildew. Limited trials in some of the Southeastern States indicate that Caliverde may be well adapted to that general part of the United States.

* The varieties given here are listed in alphabetical order without any implication of being grouped as to variegation, hardiness, wilt-resistance or other characteristics.

CANADIAN VARIEGATED

This variety, like Grimm, is thought to have originated from natural crosses between Common alfalfa (M. sativa) and the yellow-flowered alfalfa (M. falcata). It has been grown in Canada for many years and is similar to Grimm in flower color and habit of growth, and yields of forage and seed, but in the Northern Great Plains and North Central states it is not quite as winter-hardy as Grimm. It is not resistant to bacterial wilt.

CHILEAN 21-5

This is an improved selection from Arizona Chilean. All former Chilean types are being eliminated from certification in Arizona. A tender, productive variety, with no resistance to wilt and the leaf diseases.

COSSACK

This variety is adapted for growing under practically the same conditions as Grimm and has shown no general superiority to that variety. It is probably gradually giving place to the wilt-resistant Ranger wherever wilt is serious.

DuPUITS

DuPuits is a vigorous, relatively high-yielding variety of alfalfa which shows fast growth recovery following cutting. It was developed by Tournour Freres of Coulommiers, France, and was first tested in the United States in 1947. Results from scattered tests in this country show DuPuits to have good seedling vigor, moderate winter resistance (similar to Buffalo), and satisfactory forage yields in areas where adapted. It has shown some tolerance or possible resistance to leaf spots, but is susceptible to bacterial wilt and stem nematode.

GRIMM

This variety was brought to Minnesota from Germany by Wendelin Grimm in 1857. The hardiness and general adaptability of Grimm alfalfa to regions where alfalfa had never been grown before, combined with its earlier discovery, were probably the principal reasons for its popularity in the Northern States and its dominance over similar varieties introduced later such as Baltic, Canadian Variegated, and Hardigan. It is only since the advent of bacterial wilt that the popularity of Grimm had declined. It is very susceptible to wilt, but because of its extreme hardiness to cold it is still used in wilt-infested areas in short rotations.

HAIRY PERUVIAN

There are really two varieties of Peruvian alfalfa - Smooth Peruvian and Hairy Peruvian, but the latter is more generally grown. The Peruvian alfalfas do best when grown under irrigation in areas where minimum winter temperatures do not fall below 10° F. They are adapted to most of California except high elevations and to the southern parts of Arizona, New Mexico and Texas. They usually give more cuttings of hay during the growing season than most other non-hardy varieties. They are not resistant to bacterial wilt.

HARDIGAN

This is one of the first varieties of alfalfa to appear as a result of plant breeding work. It was bred for better forage quality and for larger forage and seed yields under Michigan conditions by F.A. Spragg. However, because of its susceptibility to wilt, and lack of general superiority over other wilt-susceptible varieties, it is now on the decline.

INDIAN

It is a variety similar to African in its adaptation and introduced from India. It is a high forage yielding strain in the Southwest where it makes good fall, winter and spring growth on heavy soils. It is not winter hardy, nor is it disease resistant.

LADAK

This variety of alfalfa which was imported from India shows more variegation, a larger percentage of yellow flowers, more variation in growth habits, and greater hardiness than others of this group. It produces a large first crop but is very slow in recovery after cutting. It shows some resistance to wilt and is relatively free from leaf diseases. Ladak has greatest value in regions characterized by dry, cold climates where only one or two cuttings of hay are taken annually.

LAHONTAN

In some areas this variety may replace Talent because of its higher resistance to stem nematodes and bacterial wilt. For areas free from them it is about equal to Talent in productivity. Hardiness is equivalent to that of Buffalo.

MEEKER BALTIC

Baltic alfalfa was discovered in South Dakota in 1905. It is similar to Grimm in growth and hardiness, but is a better seed producer. Meeker Baltic is a regional strain developed over many years growth in Colorado, and has no disease resistance.

NARRAGANSETT

This is a productive winter hardy variety developed recently in Rhode Island. In range of adaptation and in wilt-susceptibility it is similar to Atlantic but excels it in hardiness. If Narragansett had wilt-resistance along with its high yields and other superior qualities, it could easily become one of the most popular varieties for northern areas.

NOMAD

A pasture type "creeping" alfalfa discovered in Oregon. While it has a relatively low forage yielding capacity compared with strictly hay producing types, Nomad usually produces a good first cutting of hay after which the field can be pastured. Preliminary tests indicate that it has rather wide adaptation throughout the Northwest and elsewhere under dry and cold conditions, where bacterial wilt is not a problem.

RANGER

This is the most prominent, hardy, wilt-resistant, variegated alfalfa known today. It is widely adapted throughout the Northern and Central States, and is taking the place of Grimm and other hardy variegated alfalfas in wilt-infested areas of those states. More certified Ranger alfalfa seed is available and being used in the U.S. today than seed of any other variety. Where wilt is not a factor, it has little if any superiority over most other well-known hardy alfalfas. In areas of mild winters Ranger ordinarily is not as productive as the less hardy varieties, and produces fewer cuttings of green forage.

RHIZOMA

This is another of the "creeping" alfalfas, developed at the University of British Columbia, from crosses between *M. falcata* and Grimm. Rhizoma is extremely winter hardy, susceptible to bacterial wilt, and has a forage yielding capacity similar to that of Grimm. Extensive tests throughout the United States do not show that plants of this variety spread by the creeping habit as they do in the area of origin.

SEVELRA

This is a drought-resistant, hardy alfalfa which likely resulted from natural crosses between Orenburg and Semipalatinak and Grimm, so could also be classified with the Northern Variegated alfalfas. It is adapted to areas of relatively low precipitation, typical of southern Idaho where it originated, and that are free from bacterial wilt.

TALENT

The high yields of fine-stemmed, leafy hay, early spring growth, rapid recovery after cutting, late fall growth and its stem nematode resistance make Talent a most useful alfalfa in certain areas of the Pacific Northwest. It is not wilt-resistant. Talent has largely replaced Nemastan.

VERNAL

This is a new variegated, wilt-resistant, hardy alfalfa developed in Wisconsin. In trials there it has excelled Ranger in both yield and stand persistence and as seed supplies become available, it may replace Ranger in that state and in some other wilt-infested areas.

WILLIAMSBURG

A variety of common alfalfa developed in Virginia. It has proved valuable in that state and in some other Eastern States because of its persistence and competitive ability with summer weeds, and because of its resistance to stem rot. In areas of high humidity and summer rainfall it persists better than most other varieties. It has no resistance to the bacterial wilt.



